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FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
01/30/2002	Benjamin N. Eldridge	P102C1-US	3577

10/29/2002

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UNITED STATES DEPARTMENT
2140 RESEARCH DRIVE
LIVERMORE, CA 94550

EXAMINER

NGUYEN, VINCENT Q

ART UNIT

PAPER NUMBER

2858

DATE MAILED: 10/29/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/062,999

Applicant(s)

ELDRIDGE ET AL.

Examiner

Vincent Q Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 May 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-19 and 21-37 is/are rejected.
- 7) ☒ Claim(s) 4 and 20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3, 5-10, 13-19, 21-25, 28, 32-37, are rejected under 35 U.S.C. 103(a) as being unpatentable over Jennion et al. (5,652,524) in view of Massie (5,822,166).

Regarding claims 1-3, 16, 32, 33, Jennion discloses a system and method comprising (Figure 1) providing power (108) through probe card (102) to power input terminal (128) of said semiconductor device under test (104); providing an input signal (123) to supplemental current source (122), said input signal (123) corresponding to a temporary change in current drawn by said input terminal (128) of said semiconductor device (104). The only difference between Jennion and the claimed invention is that the claim recites providing supplemental current to said input terminal from said supplemental current source in response to said input signal while Jennion is silent. Massie discloses a system and method similar to that of Jennion and further discloses (Figure 1) providing supplemental current (18) to said input terminal (Connecting to element 18) from said supplemental current source (18) in response to said input signal (11) (See column 2, lines 20-25). It would have been obvious to one of ordinary skilled in the art at the time the invention was made to recognize the desirability of modifying Jennion to incorporate the supplemental current as taught by Massie into the

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system and method of Jennion because when power is supplied to a load (In this case the DUT), current drawn by the load causes chaos in the circuit. Current changes are fast. The bus voltage may go out of the required voltage range before the power supply can compensate for the current changes. Thus, it would have been desirable to suppress transients on a dc power bus since power supplies do not generally respond quickly to load changes (See Massie's column 1, lines 5-39).

Regarding claim 17, Jennion does not disclose a current sensing device disposed to sense a change in current drawn by said power input terminal, said current sensing device providing a corresponding signal to said input of said supplemental current source. Massie discloses a system and method similar to that of Jennion and further discloses (Figure 1) a current sensing device (21) disposed to sense a change in current drawn by said power input terminal (13), said current sensing device (21) providing a corresponding signal to said input of said supplemental current source (Massie's column 3, lines 15-31). It would have been obvious to one of ordinary skilled in the art at the time the invention was made to recognize the desirability of modifying Jennion to incorporate current sensing device as taught by Massie into the system and method of Jennion for the same reason as set forth in claim 1.

Regarding claims 5, 21, Jennion disclose sensing a change in current through a conductive path (128) on said probe card (104) that is in electrical communication with said power input terminal (109).

Regarding claim 13, 28, Jennion discloses (figure 1) providing at least one advanced signal (V1) to a reference device (106).

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Regarding claims 6, 14, Jennion does not disclose a quantity of said supplemental current corresponds to a quantity of current drawn by said input terminal. Massie discloses a device and method similar to that of Jennion and further discloses a quantity (Column 3, lines 15-32) of said supplemental current corresponds to a quantity of current drawn by said input terminal (See Massie column' 2, lines 20-25). It would have been obvious to one of ordinary skilled in the art at the time the invention was made to recognize the desirability of modifying Jennion to incorporate the quantity of the supplemental current corresponds to a quantity of current drawn by said input terminal into the system and method of Jennion for the same reason as set forth in claim 1.

Regarding claims 7, 22, 34, Jennion and Massie does not explicitly disclose current source comprises an amplifier. However, It would have been obvious to one of ordinary skilled in the art to recognize that almost current sources (i.e. Simple, Improved, Widlar, or Cascode current source comprising amplifier) (See MPEP 2144.03).

Regarding claims 8, 23, 35, Jennion does not discloses supplemental current is provided to said input terminal through a capacitor. Massie discloses a system and method similar to that of Jennion and further discloses (figure 2) supplemental current is provided to said input terminal through a capacitor (19). It would have been obvious to one of ordinary skilled in the art at the time the invention was made to recognize the desirability of modifying Jennion to incorporate the supplemental current is provided to the input terminal through a capacitor as taught by Massie into the system and method of Jennion for the same reason as set forth in claim 1.

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Regarding claims 9, 24, 36, Jennion and Massie does not disclose supplemental current source is disposed on said probe card. It would have been an obvious matter of design choice, absent evidence of criticality shown in the present invention and the lack of implicit or explicit limit to a specific design in the prior art, to have supplemental current source is disposed on said probe card, since applicant has not disclosed that supplemental current source is disposed on said probe card solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with supplemental current source is disposed on said probe card. It is noted that it is a truism that a claim need not be limited to a preferred embodiment. *Ethicon*, 93 F.3d at 1582 n.7, 40 USPQ2d at 1027 n.7 (quoting *In re Vickers*, 141 F.2d 522, 525, 61 USPQ2d 122, 125 (CCPA 1944)). However, it is pointed out in that opinion that the applicant "was free to draft claim[s] broadly (within the limits imposed by the prior art) to exclude the lockout precise location as a limitation of the claimed invention" only because he "did not consider the precise location of the lockout to be an element of his invention." Id.

Regarding claims 10, 25, Jennion discloses probe card comprises a plurality of interconnected substrates (Figure 3).

Regarding claims 15, 37, Jennion and Massie discloses every subject matter recited in the claim except for providing plurality of supplemental current to said input terminals from each of said supplemental current sources in response to said input signals. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide plurality of supplemental current to said input terminals

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from each of said supplemental current sources in response to said input signals, since it has been held that forming in one piece an article which has formerly been formed in two pieces and put together involves only routine skill in the art. *Howard v. Detroit Stove Works*, 150 U.S. 164 (1893).

Regarding claims 18, 19, Jennion does not disclose current sensing device comprises a current sense coupler. Massie discloses a system and method similar to that of Jennion and further discloses current sensing device comprises a current sense coupler (21) and current transformer (53). It would have been obvious to one of ordinary skilled in the art at the time the invention was made to recognize the desirability of modifying Jennion to incorporate the current sensing device as taught by Massie into the system of Jennion for the same reason as set forth in claim 1.

3. Claims 11, 12, 26, 27, 29-31, are rejected under 35 U.S.C. 103(a) as being unpatentable over Jennion et al. (5,652,524) in view of Massie (5,822,166) and Nishimura et al. (5,386, 189).

Regarding claims 11, 26, 29, Jennion and Massie does not explicitly disclose comprises a probe head. Nishimura et al. discloses a system and method similar to that of Jennion and Massie and further discloses (Figure 1) probe head (25). It would have been obvious to one of ordinary skilled in the art at the time the invention was made to recognize that most of the tester testing semiconductor comprising probe head. Having a probe head is typically for testing the semiconductor (See MPEP 2144.03).

Regarding claims 12, 27, Jennion, Massie and Nishimura et al. does not disclose supplemental current source is disposed on said probe head. However, it would have

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been obvious to one of ordinary skilled in the art at the time the invention was made to recognize the desirability of modifying Jennion to incorporate supplemental current source is disposed on said probe head for the same reason as set forth in claim 9.

Regarding claims 30, 31, Jennion and Massie does not disclose apparatus tests a plurality of semiconductor devices. Nishimura discloses a system similar to that of Jennion and Massie and further discloses (Figure 1) apparatus tests a plurality of semiconductor. It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate apparatus tests a plurality of semiconductor devices, since it has been held that forming in one piece an article which has formerly been formed in two pieces and put together involves only routine skill in the art. *Howard v. Detroit Stove Works*, 150 U.S. 164 (1893).

Allowable Subject Matter

4. Claims 4, 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record does not teach or suggest apparatus and method as recited in the independent claims 1, 16 having current sensing device is disposed to sense a change in current through a bypass capacitor in electrical communication with said power input terminal.

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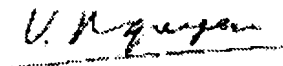
Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vincent Q Nguyen whose telephone number is (703) 308-6186. The examiner can normally be reached on Mon-Fri 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, N. Le can be reached on (703) 308-0750. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-5841 for regular communications and (703) 308-5841 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Vincent Q. Nguyen



October 26, 2002



N. Le
Supervisory Patent Examiner
Technology Center 2800